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Obstructive sleep apnea (OSA) is a known risk factor for atrial fibrillation (AF), but there is limited data on its diagnosis and management in patients with AF. ##### Background NLM provides access to scientific literature, including a study that investigated the diagnostic accuracy of OSA screening tools in an AF population. The study aimed to compare the performance of commonly used OSA screening tools, including a level 3 portable sleep study device, and examine the epidemiology of OSA in a hospital cohort with AF. ##### Objective The objectives of the study were to compare the diagnostic accuracy of OSA screening tools and to examine the epidemiology of OSA in an AF population. ##### Methodology One hundred seven patients with AF recruited from 2 tertiary centers underwent a panel of OSA screening tools and in-laboratory polysomnography in randomized order. The oxygen desaturation index derived from a level 3 portable sleep study device performed best for moderate to severe and severe OSA, showing excellent diagnostic accuracy. ##### Results Sixty-seven patients (62.6%) were newly diagnosed with OSA, with 31.8% mild, 18.7% moderate, and 12.1% severe. Undiagnosed OSA was highly prevalent in the hospital AF cohort but characterized by a relative paucity of symptoms, limiting the usefulness of history or screening questionnaires. ##### Conclusion A level 3 home sleep study device showed excellent diagnostic accuracy in patients with AF, which may inform AF management guidelines. Obstructive Sleep Apnea (OSA) and Atrial Fibrillation (AF): A Critical Link Several studies have demonstrated a strong association between OSA and AF, revealing a higher prevalence of OSA among patients with AF compared to control patients. For instance, one study found that 62% of AF patients had OSA, whereas only 38% of control patients did. The link between OSA and AF is multifaceted, as both conditions have been shown to increase the risk of AF recurrence after cardioversion and ablation procedures. Moreover, OSA is an independent risk factor for ischemic stroke in patients with AF. Despite this association, clinical guidelines lack clarity on diagnosing and managing OSA in patients with AF. Current guidelines recommend weight loss and modification of risk factors, including OSA, but do not provide a clear diagnostic strategy or treatment plan for non-obese patients. Recent guidelines from the European Heart Rhythm Association/European Society of Cardiology suggest that optimal management of OSA may reduce AF incidence, progression, recurrence, and symptoms. However, there is a gap in current knowledge regarding how and when to test for OSA in patients with AF. The diagnostic gold standard for OSA, in-laboratory polysomnography (PSG), is resource-intensive and inaccessible to many patients. In practice, patients with AF are referred for PSG based on clinical suspicion of OSA. However, it is unclear which patients with AF are most at risk of OSA. This study aimed to evaluate the validity of commonly used OSA screening tools in patients with AF, including snoring, obesity, daytime hypersomnolence, and airway crowding using symptom-based questionnaires and a portable sleep study. A study was conducted at hospitals in Sydney to investigate obstructive sleep apnea (OSA) among patients with atrial fibrillation (AF). The research aimed to examine the prevalence and severity of OSA across different AF subtypes. Patients were recruited from two hospital pathways: those presenting to the emergency department with confirmed AF, and those waiting for pulmonary vein isolation (PVI) treatment. Participants underwent a baseline interview to collect demographic data, including age, sex, ethnicity, body mass index, and other relevant information. The study excluded patients with certain health issues or who were unable to provide informed consent. Detailed information about patient health was gathered, including any underlying medical conditions such as diabetes, heart disease, high blood pressure, and previous strokes. The severity of these conditions was also taken into account using a specific scoring system called the CHA2DS2-VASc. Researchers looked at the type of AF each patient had, whether it was paroxysmal (self-terminating within 7 days), persistent/permanent, or related to family history, thyroid disease, or excessive alcohol consumption. Echocardiography results were also used to assess patients' heart function and any potential valve problems. In addition to these medical assessments, a panel of common sleep apnea screening tools was administered to all patients, including self-reported snoring, obesity measures, airway crowding indicators, daytime somnolence scores (Epworth Sleepiness Scale), and results from a portable home sleep apnea test. Clinical screening tools were compared to more accurate in-laboratory PSG tests for their ability to detect various levels of OSA severity. The diagnostic accuracy of each screening tool was evaluated against the gold standard of PSG, including metrics such as sensitivity, specificity, positive predictive value, negative predictive value, and receiver operating characteristic areas under the curve (AUC). The results from these screenings were compared to determine which tools could effectively identify patients with sleep apnea. ApneaLink Air device found to be effective in diagnosing sleep apnea. The ApneaLink Air device, a portable level 3 sleep study device, has been shown to be effective in diagnosing sleep apnea. The device measures four channels: heart rate, oxygen saturation, airflow, and respiratory effort. Automated software analysis was used to derive sleep parameters, including the apnea-hypopnea index (AHI) and a 3% oxygen desaturation index (ODI). Previous studies have shown that the ApneaLink automatic scoring software has good diagnostic accuracy compared to concurrent polysomnography (PSG). A study of 29 patients found that the device was more comfortable and convenient than in-laboratory PSG, with similar perceived qualities and patient confidence. The results suggest that the ApneaLink Air device is a clinically useful screening tool for sleep apnea. **Study Design and Patient Characteristics** The study aimed to evaluate the ApneaLink device for detecting moderate to severe obstructive sleep apnea (OSA) in patients with atrial fibrillation (AF). The device's sensitivity and specificity were previously established at 94.7% and 100%, respectively, in a non-AF population. **Patient Recruitment** To achieve sufficient statistical power, the study aimed to recruit 110 patients: 40 with OSA and 70 without OSA. Considering an expected withdrawal rate of up to 20%, this number was deemed necessary to ensure reliable results. The study flowchart is outlined in Figure 1. **Baseline Characteristics** Patient baseline characteristics were summarized by the presence of moderate to severe OSA (AHI ≥ 15 events/h). Key findings include: * Demographics: patients with AF and moderate to severe OSA were similar to those without OSA in terms of age, sex, ethnicity, and recruitment stream. * Phenotypic characteristics: + BMI was higher in patients with moderate to severe OSA compared to those without (30.4 ± 4.2 kg/m² vs 25.8 ± 3.3 kg/m², p < 0.001). + Neck circumference was also greater in patients with moderate to severe OSA (42.1 ± 5.8 cm vs 39.1 ± 3.9 cm, p = 0.003). * Comorbidities/AF risk factors: + Hypertension was more prevalent in patients with moderate to severe OSA compared to those without (66.7% vs 29.7%, p < 0.001). + CCF was also more common in patients with moderate to severe OSA (30.3% vs 10.8%, p = 0.013). **Other Findings** Additional baseline characteristics are reported in supplemental materials, including a Bland-Altman plot comparing AHI from polysomnography (PSG) and the ApneaLink device. Note: I've tried to preserve the original structure and content of the text while rephrasing it for clarity. Let me know if you'd like me to make any further changes! Researchers analyzed data from 50 patients with atrial fibrillation and compared the diagnostic accuracy of various screening tools for obstructive sleep apnea (OSA). The findings showed that only one tool, the high-sensitivity audiometry test (HSAT), performed well across all severity categories. A portable sleep study device was also found to be effective in detecting OSA, particularly at moderate to severe levels. For moderate to severe OSA, self-reported hypersomnolence and snoring using the Epworth Sleepiness Scale were found to have poor diagnostic accuracy. However, obesity (BMI ≥ 30 kg/m²) and a high-risk STOP-BANG score or Berlin questionnaire score showed fair but not excellent diagnostic accuracy. In contrast, for severe OSA, two screening tools had good diagnostic accuracy: obesity (with an AUC of 0.865) and a high-risk STOP-BANG score (with an AUC of 0.847). Snoring, self-reported hypersomnolence, and a modified Mallampati score ≥ 3 were found to have poor or very poor diagnostic accuracy. The study also found that snoring was highly sensitive but not specific for detecting OSA, while the Epworth Sleepiness Scale showed poor to very poor diagnostic accuracy across all severity categories. Overall, the results suggest that certain screening tools are more effective than others in diagnosing OSA in patients with atrial fibrillation. The results of a recent study on obstructive sleep apnea (OSA) show that a level 3 portable sleep study device had high diagnostic accuracy for detecting OSA severity, with an area under the curve (AUC) of 0.896-0.925. However, snoring and self-reported hypersomnolence measured via the Epworth Sleepiness Scale (ESS) performed poorly in diagnosing moderate to severe OSA. The study also found that patients perceived a level 3 portable sleep study device as more comfortable, convenient, and conducive to replicating their usual sleep pattern compared to traditional in-laboratory polysomnography (PSG). There was no significant difference in patient confidence in the test results between the two methods. In terms of diagnostic accuracy, the level 3 portable sleep study device performed well across all levels of OSA severity. However, its performance varied depending on the cutoff values used for the apnea-hypopnea index (AHI) and oxygen desaturation index (ODI). The device was particularly accurate in detecting moderate to severe OSA. The study also found that a significant proportion of patients (67%) were newly diagnosed with OSA, with 62.6% being classified as having mild, moderate, or severe disease. There was no significant difference in the presence of moderate to severe OSA between emergency department (ED) and primary care visit (PVI) recruitment streams. Overall, the study suggests that a level 3 portable sleep study device can be a valuable diagnostic tool for detecting OSA severity, especially when used with cutoff values tailored to specific population groups. A recent study evaluated the effectiveness of a level 3 Home Sleep Apnea Test (HSAT) in identifying obstructive sleep apnea (OSA) in an atrial fibrillation (AF) population. The results showed that a level 3 HSAT had the highest diagnostic accuracy for all levels of OSA severity, including mild, moderate, and severe cases. This is significant because previous studies only validated these devices in patients with suspected OSA or those receiving treatment at sleep clinics. The study found that patients with AF are distinct from those seen at sleep clinics and have different clinical characteristics, such as less daytime symptoms and obesity. This highlights the importance of validating diagnostic tools for specific patient populations. Surprisingly, traditional OSA risk factors like self-reported snoring, hypersomnolence, and obesity did not perform well as screening tools in this AF population. Self-reported snoring and obesity had poor diagnostic accuracy for moderate to severe OSA, while hypersomnolence was very poorly predictive. The study also evaluated the performance of popular screening questionnaires like STOP-BANG and Berlin. While these questionnaires had fair diagnostic accuracy for moderate to severe OSA, they were less effective in an AF population due to the absence of traditional OSA symptoms. Notably, a STOP-BANG score ≥ 3 (intermediate to high risk) had a very high negative predictive value (90%) for excluding moderate to severe OSA. This suggests that STOP-BANG could be a useful screening tool in areas where level 3 devices are not readily available. Overall, the study emphasizes the importance of validating diagnostic tools for specific patient populations and highlights the limitations of traditional OSA risk factors in an AF population. For every 100 AF patients screened with this approach, 62.6% would return a high AHI score, making them eligible for further testing. However, there's a risk that some cases might be missed due to low sensitivity in screening tools. The study aimed to investigate the significance of OSA severity in AF patients and explored the effectiveness of using ODI from a portable device as a screening tool. The findings suggest that OSA prevalence is high among AF patients, with 62.6% newly diagnosed with OSA and 30.8% diagnosed with moderate to severe OSA. The study's results confirm previous findings that pulse oximetry data collected in a sleep laboratory setting provides more accurate detection of OSA compared to home settings. The use of a portable device also has its advantages, as it can distinguish between obstructive and central apneas, which may be beneficial for patients with cardiovascular concerns. Notably, the study's population was recruited solely based on AF diagnosis, without considering sleep symptoms or risk factors, resulting in a lower OSA prevalence compared to previous studies using alternative diagnostic methods. The study highlights that sleep apnea (OSA) is often underdiagnosed in patients with atrial fibrillation (AF), even though it's common in this population. Most studies on OSA in AF patients only find a diagnosis based on patient reports and medical records, not through active screening. However, when patients are screened for OSA regardless of symptoms, the prevalence is much higher, around 80-82%. The current underdiagnosis of OSA in AF patients and the lack of traditional daytime symptoms emphasize the need for a simple and cost-effective screening tool. The study also found that a portable sleep study performed at home was just as accurate as a laboratory-based study, and even more comfortable for patients. This is because the home study can be done in a patient's normal sleeping environment, which may not artificially increase the severity of sleep-disordered breathing like laboratory studies do. However, there are some limitations to the study. It only looked at one night's worth of data, which might not capture variations in sleep apnea severity from night to night. Additionally, the home study device used did not record sleeping position, so it couldn't be compared directly to laboratory studies. Some patients also declined to participate in the study, which may have introduced a bias and impacted the prevalence data. The study recruited patients from two different sources (ED presentations and PVI waitlists), which may have also introduced some biases due to differences between these groups. We aimed to create a realistic representation of patients with atrial fibrillation (AF) and compare AF groups. Our study does not address the question of whether treating obstructive sleep apnea (OSA) in AF patients improves health outcomes, which is crucial when considering screening strategies. This inquiry requires further research, as ongoing randomized control trials are addressing this question. We found that traditional OSA symptoms like snoring, self-reported sleepiness, and obesity are inadequate for detecting moderate to severe OSA in an AF population. A level 3 home sleep apnea test (HSAT) showed excellent diagnostic accuracy in a hospital-based AF population and could be useful as a screening tool. Patients perceived HSAT testing as more comfortable, convenient, and matching their usual sleep pattern better than in-laboratory polysomnography. # All authors reviewed and approved the manuscript. Funding sources include research grants from the Ramsay Research and Teaching Fund and the ResMed Foundation/Sleep Health Foundation Research Entry Scholarship. In-kind support was received from ResMed Pty Ltd, while PAC has a relationship with ResMed through an endowed academic chair. KS received in-kind support from SonoMed. The remaining authors report no conflicts of interest. # We would like to acknowledge the following contributors: Mohammad Ahmadi, Gary Cohen, Aimee Lowth, Melanie Madronio, Bernie McGrath, Tessa Milne, Magas Ragupathy, Nina Sarkissian, and William Wood. Association between atrial fibrillation and obstructive sleep apnea has been extensively studied. Studies have shown that patients with sleep apnea are more likely to develop atrial fibrillation, and vice versa. Atrial remodeling is thought to be one possible mechanism by which obstructive sleep apnea contributes to the development of atrial fibrillation. Several studies have demonstrated a link between nocturnal arrhythmias and sleep-disordered breathing. Obstructive sleep apnea has also been shown to increase the risk of incident atrial fibrillation, particularly in individuals who are obese. In addition, studies have found that patients with paroxysmal and persistent atrial fibrillation and normal left ventricular function are more likely to have sleep disordered breathing. Furthermore, a rat model study demonstrated that long-term repetitive obstructive sleep apnea can promote the development of atrial fibrillation. The negative tracheal pressure during obstructive respiratory events has also been shown to promote atrial fibrillation by vagal activation. Atrial remodeling is another possible mechanism by which obstructive sleep apnea contributes to the development of atrial fibrillation. Studies have also investigated the effect of obstructive sleep apnea treatment on atrial fibrillation recurrence. A meta-analysis found that treating obstructive sleep apnea can reduce the risk of atrial fibrillation recurrence after catheter ablation. Sleep Apnea and Atrial Fibrillation: Recent Insights and Guidelines Obstructive sleep apnea (OSA) has been identified as a significant risk factor for stroke in patients with atrial fibrillation (AF). Studies have consistently shown that OSA can increase the frequency of stroke in AF patients, highlighting the need for early detection and treatment. Recent guidelines and position papers from various organizations, including the European Heart Rhythm Association (EHRA), the American College of Cardiology (ACC), and the National Heart Foundation of Australia, provide guidance on the prevention and management of AF. The EHRA/EACPR position paper emphasizes the importance of identifying patients with OSA and providing them with appropriate treatment to prevent AF. The 2018 Australian Clinical Guidelines for the Diagnosis and Management of Atrial Fibrillation recommend regular screening for OSA in patients with AF, particularly those at high risk. Additionally, the 2020 ESC Guidelines provide guidance on the diagnosis and management of AF, including the use of sleep apnea testing as a valuable tool in clinical practice. Furthermore, research has shown that undiagnosed sleep apnea can have a significant impact on therapy for patients with AF, leading to reduced treatment efficacy. Studies such as those published by Shapira-Daniels et al. and Nigro CA et al. have demonstrated the importance of identifying OSA in AF patients and providing them with effective treatment. In conclusion, sleep apnea and atrial fibrillation are closely linked conditions that require early detection and treatment. Recent guidelines and position papers from various organizations provide valuable guidance on the prevention and management of AF, while research highlights the need for regular screening and effective treatment strategies for OSA in patients with AF. 1. Several diagnostic tests have been validated for estimating obstructive sleep apnea (OSA) syndrome, including portable recording devices and overnight oximetry. 2. These studies suggest that these tests can be effective in identifying patients with suspected OSA. 3. Portable sleep tests are less expensive and more convenient than polysomnography but may not provide as accurate results. This article includes references to any supporting data and supplementary materials cited within it. The publication is made possible through a courtesy arrangement with the Journal of Clinical Sleep Medicine, which is officially published by the American Academy of Sleep Medicine.